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ABSTRACT

The object of this study was to record detailed descriptions of the procedure employed in a number of actual searches of the indexes to Science Abstracts. From these data, any problems which the users encounter would be shown and any areas in which the indexes might be better structured to suit the users' requirements might be determined. Different users follow different search procedures and their search requirements are as diverse as their varied degrees of subject knowledge, experience and familiarity with the indexes. Therefore, the documented searches were made by both scientists and librarians, by users familiar with the indexes and by first-time users. Varying degrees of exhaustivity of search, output requirements and other variables were included if at all possible. (Related studies are: LI 004105 and 004106) (Author/NH)

ED 071710

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CASE STUDIES OF THE USE OF SUBJECT INDEXES

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Case Studies of the Use of Subject Indexes

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July 1972

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Summary

A study is reported in which a number of users, of differing background and experience, recorded the procedure used in making searches of the subject indexes to Science Abstracts. The procedures are discussed and conclusions drawn which are compared with the results of parallel INSPEC studies on user preference in subject indexes.

Acknowledgement

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Introduction

This study is one of a series of user studies carried out by INSPEC. In these studies, the user's preferences for various subject index formats and characteristics were sought and their use and opinions of Science Abstracts, in particular, were examined.

In the first studies, users were asked if they found particular characteristics of various indexes acceptable or useful, and to give a general indication of how they make a search in the indexes to Science Abstracts. For example, they were asked if they made use of the cross-references provided.

These were essentially subjective assessments, whereas in the study reported here, a more objective evaluation was sought. The object of the study was to record detailed descriptions of the procedure employed in a number of actual searches of the indexes to Science Abstracts. From these data, any problems which the users encounter would be shown and any areas in which the indexes might be better structured to suit the users' requirements might be determined.

Different users follow different search procedures and their search requirements are as diverse as their varied degrees of subject knowledge, experience and familiarity with the indexes. It was, therefore, planned that the documented searches should be made by both scientists and librarians, by users familiar with the indexes and by first-time users. Varying degrees of exhaustivity of search, output requirements and other variables were to be included if at all possible.

Collection of Data

A detailed description of a search may be recorded either by the user himself or by an observer. The latter approach has two particular disadvantages: Firstly, the searcher is easily influenced in the way he carries out his search because he is being watched, and will tend to act in the way he considers is expected of him; secondly, this method of data collection is time-consuming. Not only must the observer be present throughout the entire search, but must also be available close to the indexes for long periods of time in order that he is present when a user arrives, since the search must be carried out in the user's time and not at the convenience of the project staff. It was essentially for this latter reason that this means of data collection was rejected.

The alternative- to ask the user to record his own search -also has its problems. This is still an important factor.

The time taken for a search is considerably extended if all the decisions made and headings and index strings consulted are recorded. Additionally, in order that the search can be reconstructed, the user must be prompted to record certain essential details, but this must be done in such a way that the user is not influenced in the manner in which he carries out the search. For instance, if a user is asked if he consulted the cross-references, he may feel that he ought to do so even if it is not his normal practice. Despite these difficulties, this procedure for collecting the data was adopted because it was most suited to the time and number of project staff available.

A number of formats of a record sheet for use by searchers were tested to ensure that sufficient details were recorded for the search to be reconstructed. The final format is shown in Appendix 1.

A number of subscribers were invited to participate in the project by the letter shown in Appendix 2. They were asked to encourage their users to complete one of the search record sheets if they used the indexes and to complete one themselves if the occassion arose. The subscribers who were approached were sympathetic towards the project and volunteered to help if it was possible for them to do so. As was anticipated, they qualified their offers by explaining that most of their use of the indexes was under great pressure of time and under these circumstances it would not be possible to complete a record sheet. They also thought that some of the searches which they made would not be suitable for the project, although it was explained that the study sought to investigate any use made of the indexes.

Despite the initial willingness of the subscribers to participate, this procedure did not prove to be satisfactory. The Library of the Institution of Electrical Engineers was one of the participating libraries and this was the single source of useful data. Again, their main problem was of contacting readers before they started a search in the indexes. The librarian did not have the opportunity to ask every user to complete the record sheet and so the project staff spent considerable time near the indexes in order to make contact with anyone who used them.

Search Procedure and User Preference

As a result of the problems encountered in collecting data, insufficient record sheets were completed for any statistical analysis to be made of the data. However, the record sheets completed may be treated as case studies representing searches made by users with differing backgrounds. These

were two information officers, familiar with theindexes and qualified in the subject, a librarian, unfamiliar with the indexes and subject matter, and two scientists, one of whom used the indexes from time to time and the other who had not used them before.

The five case studies are summarised in Appendix 3 in which particular points about the way in which each search was carried out are noted. Comparison of the searches, one with another, and with the user preference observed in the earlier studies is of interest.

Subject Index Headings

In every instance, the searcher looked first for the concepts in which he expressed his query as subject-index headings. These concepts were frequently specific and generally comprised more than one term, e.g. radio noise interference. Scientists and information officers were alike in this tendancy. Even where an information officer was familiar with the specifity of indexing, no attempt appears to have been made to look for suitable subject headings which might be present. Only when the specific concepts were not located, did the searchers move to the more generic headings. These were usually one of the terms of the multi-word concept originally sought. From these case studies, it would seem that the user expects a high preco-ordination of index terms. This then is the explanation for the strong preference for British Technology Index, which was shown in the previous user studies since British Technology Index has a high preco-ordination of index terms.

Only the information officers thought for themselves of possible alternatives subject headings. Even where the first headings found were not very productive, the other users were either unable to think of alternative headings or were not prepared to do so. This would indicate that a lead-in vocabulary is required which is large enough for it to be generally unnecessary for the user to make the jump from the vocabulary of his query to that of the subject index headings.

Cross-references

In support of the results obtained from the previous studies, these case studies indicate that only the information officers and librarians make use of the cross-references at present provided in the indexes. However, it is not possible to determine from the search records whether the user was sufficiently satisfied with the headings already located or whether he would not use the cross-references in any case.

For the same reason, it is not possible to determine whether the search would have been more successful had the cross-referenced headings been colsulted. The earlier studies would indicate that the users are satisfied that sufficient cross-references are already included.

Allied to the question os usage of cross-references, it can be seen that the librarians and information officers carry out more exhaustive searches than the scientists. For the librarian new to the indexes, this represents an effort to become familiar with its structure and for the experienced information officer an awareness of the fallibility of indexing. More generally, it indicates a different search requirement. The information worker, operating by proxy, was looking for ten to twenty items while the scientist was satisfied with fewer. Possibly the scientist has a clearer definition of what he requires, while the information officer, less sure of his requestor's needs, selects more items in order that the requester may make the final assessment of usefulness.

Gold Pages

Although users do not think of alternative headings for themselves, neither do they often use the gold pages to suggest any. Previous discussion indicates that the scientists do not generally see any need for further headings, but the same would not be said of the information officers and librarians because they use the cross-references. For the librarian with no subject knowledge, this tool is probably not suitably structured, and for them the classified arrangement might usefully be replaced by an alphabetically arranged lead-in vocabulary.

The New User to the Index

Despite the reference made above to the infrequent use of the gold pages by scientists, the only user in this study to use them was the scientist who had not used the indexes before. To him the classified arrangement was meaningful and although the headings available were not directly suited to his particular interests, he did not think this was a serious disadvantage when the subject breakdown was logical. He showed an encouraging desire to learn to use the indexes effectively, but was thwarted in this because he was unable to locate a sufficiently comprehensive explanation.

Index Entries

The keywords of the index entries were used for selection purposes, but only in a few of the searches was the alphabetical arrangement of the keywords utilized. This approach

is not suitable in all instances. For example, if information on new materials used in fuel cells is required, the searcher must necessarily scan the complete list because he does not know what the new materials will be. If the exact requirement of a search is not known, the alphabetical arrangement cannot be used. This fact presents an important argument against the view put forward in the study of user preference that the large number of entries which would result from the introduction of multiple entries for each item under a single heading is acceptable because the keywords are alphabetically arranged. Some searchers must of necessity scan the complete list of entries.

Treatment Codes

During the course of correspondence with one of the participants in which he offered a number of opinions on his requirements for indexes, he pointed out a need for treatment codes in the index entries. This suggestion was made in the study of user preference and is discussed in detail in that report, but this user gave a new slant to this requirement. He pointed out that he frequently has a need to locate documentation of particular processes. These are often to be found in books which are indexed as a single entry and the content of smaller sections of the book is not represented in the indexing terms it is assigned. References to these sections of books he more usually traces through review papers and would therefore find it helpful if review papers were always indicated as such.

Two-stage Indexes

Science Abstracts is a two-stage index. That is, the abstract is separate from its subject index entry and is located by an identification (abstract) number. In all these case studies the two steps were distinct, i.e. a complete list of abstract numbers was selected before any abstracts were consulted. It is undoubtedly inconvenient to move continuously between the index and abstracts, but the search method observed would indicate a certain confidence in the index entries.

Conclusions

Although the methodology of this study proved difficult to implement because it was highly demanding of time, a number of case studies were completed. The difference in the way the searches were carried out corresponded with the background and experience of the searchers and substantiated many of the points which arose in previous studies of user preference for various index characteristics.

Appendix 1

Use of Subject Indexes to Science Abstracts

As part of our investigation of the use and performance of INSPEC printed indexes we are making some detailed studies of individual subject searches. We would be grateful if you would assist us by completing this questionnaire while you are making your next search in the subject indexes of Science Abstracts. Any details of this search which you give will be treated in confidence.

1. How frequently do you consult the subject indexes in Science Abstracts.

2. What is the subject of the information you hope to obtain from the index on this occasion? Please explain as fully as possible.

3. Have you consulted the index on this topic before?

4. What limitations, if any, will be imposed on the time you will spend on your search or the number of relevant items you require?

5. What suitable subject headings would you hope to find in the index for use in this search?

6. As you use each index, please list every subject heading which you consult, and list the abstract numbers of these entries whose abstracts you intend to consult.

Science Abstracts Series A, B or C	Volume	Part	Subject headings consulted	Abstracts Numbers

7. Did you follow up any of the cross references supplied?

8. Did you make use of the classified list of subject headings (gold pages)?

9. Did you refer to the abstracts before your search of the index was completed?

10. Did you make any use of the chapter arrangement of the abstracts journal in your search?

11. Please indicate by a tick, or in some other way, those abstracts listed in Question 6 which were relevant.

12. If you modified your initial requirements during your search, please explain how.

13. Approximately how long did your search in Science Abstracts take you?

14. Please explain any difficulties which you may have encountered during your search.

Date ..... Signed .....

We are most grateful for your help.

Please return the form to:

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The Institution of Electrical Engineers

Savoy Place

London WC2R OBL

Appendix 2

INSPEC

The Institution of Electrical Engineers

Savoy Place London WC2R 0BL Tel: 01-240 1871 – Telex 261176
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September 1971

Dear

We are carrying out a series of OSTI-supported studies of the use and performance of the printed indexes to Science Abstracts. In the first part of this investigation we obtained general comments from a large number of users on the performance of the indexes, suitability of subject headings, layout etc.

We would now like to have some detailed descriptions of specific searches which are made in our indexes, and would appreciate your help in this part of our investigation.

A number of forms are enclosed. These we would like you, or any other user of Science Abstracts, to complete the next time a search in the indexes is made. We would prefer that you should complete the form at the time of your next search even though the search may not seem altogether suitable for this purpose. If you are willing to complete more than one form this would, of course, be most useful.

We would be most grateful if you would help us in this study, but if you are unable to do so perhaps you would let us know.

Yours sincerely,

A.M. Hall (Miss)
Information Research Officer

Encs.

INSPEC Information Services in Physics, Electrotechnology, Computers and Control, comprise *Physics Abstracts* • *Electrical & Electronics Abstracts* • *Computers & Control Abstracts* • *Current Papers in Physics* • *Current Papers in Electrical & Electronics Engineering* • *Current Papers on Computers & Control* • SDI services • Magnetic tape data bases • Cumulative index sets

Appendix 3-1

Search Record Summary

1. Case I.
2. Information Officer
3. Experienced user, qualified in subject.
4. Question: The latest material used in fuel cells.
5. Search requirements: 10-20 references.
6. Volumes searched: Science Abstracts B 1970 part II.
7. Term initially sought: Fuel cells.
8. Headings sought: Fuel Cells.
9. Use of 'see also' references if available : Not Available
10. Method of scanning index entries: Scanned complete list
11. Use of gold pages: No.
12. Use of chapter arrangement (not specific to this search):Yes
13. Number of useful items retrieved: 15.
14. Time taken: 30 minutes.

Appendix 3-2

Search Record Summary

1. Case II
2. Information Officer
3. Experienced user, qualified in subject
4. Question: Optical/infrared communication systems and equipment including GaAs diodes, etc.
5. Search requirements: Approximately 12 recent articles (from the last five years) at an introductory (i.e. degree) level and in English.
6. Volumes searched : Science Abstracts B 1969 part II
   1970 part I and II
7. Term initially sought: Infrared detectors.
8. Headings used: Infrared detectors, infrared imaging, semiconductor diodes, optical cummunication equipment, optical links, laser beam applications, photo diodes.
9. Use of 'see also' references if available: Yes
10. Method of scanning index entries: Scanned complete list.
11. Use of gold pages: No
12. Use of chapter arrangement (not specific to this search): Yes
13. Number of useful items retrieved: 5
14. Time taken: 30 minutes.

Search Record Summary

1. Case III
2. Librarian
3. Unfamiliar with the indexes
4. Question: Magnetic flux distribution in type II superconductors
5. Search requirements
6. Volumes searched: Science Abstracts B 1970 part I
7. Term initially sought: Magnetic flux
8. Headings used: Magnetic flux measurement, magnetic fields, superconductivity, superconducting material, superconducting magnets.
9. Use of 'see also' references if available: Yes
10. Method of scanning index entries: Scanned complete list and selected entries containing the question terms.
11. Use of gold pages: No
12. Use of chapter arrangement (not specific to this search): Not known
13. Number of useful items retrieved: 5
14. Time taken: not known.

Search Record Summary

1. Case IV

2. Scientist

3. Previous use of the index

4. Question: Man-made radio noise interference - not interference from stars or lightening.

5. Search requirement: Exhaustive search (or until he gives up)

6. Volumes searched: Science Abstracts B 1971 Parts I and II
1970 Part II

7. Term initially sought: Radio noise interference

8. Headings used: Interference, interference suppresion, noise rejected after looking at a few entries

10. Method of scanning index entries: Scanned complete list

11. Use of gold pages: No

12. Use of chapter arrangement (not specific to this search): Not known

13. Number of useful items retrieved: 7

14. Time taken: not known

Search Record Summary

1. Case V
2. Scientist
3. Unfamiliar with the indexes
4. Question: Superconductivity and airgap insulation work and leading personnel in Eastern Europe
5. Search requirements: -
6. Volumes searched: Science Abstracts B 1970 Parts I and II
7. Terms originally sought: Superconductivity, superconducting materials
8. Headings used: Superconductivity, superconducting materials.
9. Use of 'see also' references if available : Not available
10. Method of scanning index entries: Scanned complete list
11. Use of Gold Pages: Yes
12. Use of chapter arrangement (not specific to this search): Yes
13. Number of useful items retrieved: Not known
14. Time Taken : Not known